REMARKS

This preliminary amendment cancels the currently pending Claims 116-232 and adds new Claims 233-344. Claims 1-232 are currently cancelled. Newly added claims 233-344 comprise eight independent claims. The eight independent claims are numbered 233, 268, 275, 278, 315, 322, 325 and 335. No new matter is believed to be added by any new claim.

As currently presented, the new Independent Claims 233, 268, 275, 278, 315, 322, 325 and 335 read as follows:

233. A scanhead for use with an ultrasound imaging system, comprising:

a transducer assembly comprising a single element ultrasonic transducer that is configured to generate ultrasound at a frequency of at least 20 megahertz (20MHz), to transmit at least a portion of the generated ultrasound into a subject and to receive ultrasound energy from the subject;

an elongate member having a proximal end, wherein the elongate member is configured to pivot about a pivot axis spaced from the proximal end, and wherein the transducer assembly is non-rotatably coupled to the proximal end of the elongate member; and

a means for oscillating the transducer along a reciprocating convex arcuate path at a frequency of at least 7.5 Hz, wherein a portion of the means for oscillating is fixed relative to the elongate member and moves along a reciprocating arcuate route remote from the reciprocating arcuate path of the transducer such that movement of the portion of the means for oscillating causes a complementary and opposite movement of the transducer, and wherein the reciprocating arcuate path of the transducer is co-planer to the reciprocating arcuate route of the portion of the means for oscillating.

268. An ultrasound imaging system, comprising:

the scanhead of Claim 233; and

a processor configured to process the received ultrasound to provide an image having a frame rate of at least 15 frames per second (fps).

275. An ultrasound imaging system, comprising:

the scanhead of Claim 233;

a processor configured to process the received ultrasound to provide an image having a frame rate of at least 15 frames per second (fps); and

a means for positioning the transducer to within about 1 micron (μm) of a predetermined location along the reciprocating arcuate path.

278. A scanhead for use with an ultrasound imaging system, comprising:

a transducer assembly comprising a single element ultrasonic transducer that is configured to generate ultrasound at a frequency of at least 20 megahertz (20MHz), to transmit at least a portion of the generated ultrasound into a subject and to receive ultrasound energy from the subject;

an elongate member having a proximal and a distal end, wherein the elongate member is configured to pivot about a pivot axis spaced from the proximal end, and wherein the transducer assembly is non-rotatably coupled to the proximal end of the elongate member; and

a motor comprising a rotor wherein the rotor is operatively coupled to the distal end of the elongate member, wherein the motor is configured to oscillate the transducer along a reciprocating convex arcuate path at a frequency of at least 7.5 Hz, and wherein at least a portion of the rotor is configured to oscillate along a concave reciprocating arcuate route remote from and co-planar to the reciprocating arcuate path of the transducer.

315. An ultrasound imaging system, comprising:

the scanhead of Claim 278;

a processor configured to process the received ultrasound to provide an image having a frame rate of at least 15 frames per second (fps).

322. An ultrasound imaging system, comprising:

the scanhead of Claim 278;

a processor configured to process the received ultrasound to provide an image having a frame rate of at least 15 frames per second (fps); and a position encoder configured to position the transducer to within about 1 micron (µm) of a predetermined location along the reciprocating arcuate path.

325. A method for producing an ultrasound image, comprising:

a) providing a scanhead, comprising:

i) a transducer assembly comprising a single element ultrasonic transducer;

ii) an elongate member having a proximal end, wherein the elongate member is configured to pivot about a pivot axis spaced from the proximal end, and wherein the transducer assembly is non-rotatably coupled to the proximal end of the elongate member; and

iii) a means for oscillating the transducer along a reciprocating convex arcuate path, wherein a portion of the means for oscillating is fixed relative to the elongate member and moves along a reciprocating arcuate route remote from the reciprocating arcuate path of the transducer such that movement of the portion of the means for oscillating causes a complementary and opposite movement of the transducer, and wherein the reciprocating arcuate path of the transducer is co-planer to the reciprocating arcuate route of the portion of the means for oscillating;

b) generating ultrasound at a frequency of at least about 20 megahertz (20MHz) using the transducer;

c) transmitting at least a portion of the generated ultrasound into a subject from a location external to the subject;

d) receiving ultrasound energy from the subject;

e) oscillating the transducer along the reciprocating arcuate path at a frequency of at least 7.5 Hz during the generation, transmission and receipt of the ultrasound; and

f) processing the received ultrasound to provide an image having a frame rate of at least 15 frames per second (fps).

335. A method for use with an ultrasound imaging system, comprising:

a) providing a scanhead, comprising:

i) a transducer assembly comprising a single element ultrasonic transducer configured to generate ultrasound at a frequency of at least 20 megahertz (20MHz), to transmit at least a portion of the generated ultrasound into a subject and to receive ultrasound energy from the subject;

ii) an elongate member having a proximal and a distal end, wherein the elongate member is configured to pivot about a pivot axis spaced from the proximal end, and wherein the transducer assembly is non-rotatably coupled to the proximal end of the elongate member; and

iii) a motor comprising a rotor wherein the rotor is operatively coupled to the distal end of the elongate member, wherein the motor is configured to oscillate the transducer along a reciprocating convex arcuate path at a frequency of at least 7.5 Hz, and wherein at least a portion of the rotor is configured to oscillate along a concave reciprocating arcuate route remote from and co-planar to the reciprocating arcuate path of the transducer;

b) generating ultrasound at a frequency of at least about 20 megahertz (20MHz) using the transducer;

c) transmitting at least a portion of the generated ultrasound into a subject from a location external to the subject;

d) receiving ultrasound energy from the subject;

e) oscillating the transducer along the reciprocating arcuate path at a frequency of at least 7.5 Hz during the generation, transmission and receipt of the ultrasound; and

f) processing the received ultrasound to provide an image having a frame rate of at least 15 frames per second (fps).

In regard to the election/restriction requirement that was mailed January 10, 2006, the Applicants would like to thank the Examiner for the time extended for the courtesy of the telephone interview conducted on January 17, 2006, in which it was agreed that the restriction requirement had crossed in the mail with the Applicant's prior filed preliminary amendment, submitted January 6, 2006, which rendered the issued restriction requirement moot. As it was determined to be moot, the Applicants have not included a payment for an extension of time to respond to the outstanding January 10, 2006 office communication.

In addition, the Applicants would like to thank the Examiner for the time extended for the courtesy of the telephone interview conducted on March 27, 2006 during which clarification of the current invention was discussed. Applicants respectfully submit that the amendments to the claims, including the cancellation of claims 116-232 and the addition of new claims 233-344, should be constructed as being submitted merely to clarify the invention rather than as a limitation submitted to overcome a cited reference. Applicants respectfully submit that these amendments were not made for any reason related to patentability.

Applicants believe that Claims 233-344 are in condition for allowance. If, however, the Examiner has any comments regarding Applicants' preliminary amendment or intends to dispose of this matter in a manner other than a notice of allowance, Applicants respectfully request that the Examiner telephone Applicants' undersigned attorney.

No additional fees are believed due with this amendment; however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,

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CERTIFICATE OF MAILING UNDER 37. C.F.R. 1.8

I hereby certify that this correspondence, along with any items indicated as attached or included, is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

Kean J. DeCarlo

5/3/2006
Date

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